Amendments to the Claims

This listing of claims will replace all prior revisions and listings of claims in this application.

Listing of Claims

1. (Currently Amended) A method of estimating a pose of a human head in natural scenes comprising the steps of:

generating, a sparse representation of a human face <u>by transforming a raw facial image into sets of vectors representing fits of the face to a random, sparse set of model configurations</u>;

training, the sparse representation to a set of face(s) in known poses; and

determining, a pose of a head by comparing the trained representation(s) to a facial image.

2. (Cancelled) The method according to claim 1 further comprising the steps of:

transforming a raw facial image into sets of vectors representing fits of the face to a random, sparse set of model configurations (the sparse representation).

3. (Currently Amended) The method according to claim [2] <u>1</u> wherein the transforming step further comprises the step of:

collecting, salient features of the face image which are useful to estimate the pose of the face.

4. (Original) The method according to claim 3 wherein the transforming step further comprises the step of:

suppressing, irrelevant variations of face appearance.

1   5. (Original) The method according to claim 4 wherein the training step further comprises
2   the steps of:

3   learning, using Support Vector Regression (SVR), a relation between the sparse
4   representation and the pose(s).

1   6. (Withdrawn) A method of estimating the pose of a human head in a natural setting
2   comprising the steps of:

3   constructing, a set of sparse representation filters (SRF) to accumulate edge
4   response along a boundary of a facial landmark, shaped such that the response is smooth
5   with respect to the changes in the position and the shapes, between a model and image
6   data;

7   applying, SRF to training images producing $SRF(I_a)$;

8   training the relation $SRF(I_a) \rightarrow pose(I_a)$;

9   determining a sparse representation $SR(J_a)$ for each subject image (J_a); and

10   determining, a pose of the subject image.